

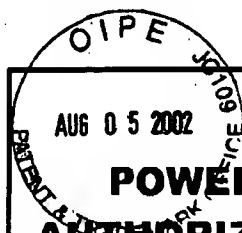
SENT BY:HBS&R

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978 934 4043;# 3/ 4

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

**POWER OF ATTORNEY OR
AUTHORIZATION OF AGENT AND
CORRESPONDENCE ADDRESS**

Application Number	09/994,998
Filing Date	November 27, 2001
First Named Inventor	Sukant Tripathy
Group Art Unit	1614
Examiner Name	not assigned
Attorney Docket Number	2328.2003-001

Title POLYMERIZATION OF AROMATIC MONOMERS USING DERIVATIVES OF HEMATIN

I/We hereby appoint

☒ the attorneys/agents associated with Customer No. 021005☐ Practitioner(s) named below:

as my/our attorneys/agents to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

The correspondence address for the above-identified application is:

☒ Customer Number 021005

Hamilton, Brook, Smith & Reynolds, P.C.

530 Virginia Road

P.O. Box 9133

Concord, Massachusetts 01742-9133

☐ Other

Please direct all telephone calls and facsimiles to:

Name N. Scott Pierce

Tel. No.

978-341-0036

Fax No.

978-341-0136

I am the:

☐ Applicant/Inventor.☐ Authorized representative of the Assignee of the entire interest. See 37 C.F.R. 3.71. A Statement under 37 C.F.R. §3.73(b) is enclosed.☒ Authorized representative of an assignee together with the Government of the United States, as represented by the Secretary of the Army, of the entire interest. A separate Statement under 37 C.F.R. § 3.73(b) is enclosed.**SIGNATURE of Applicant or Assignee of Record**

Name

Louis J. Petrovic, Ph.D.

Signature

Date

7/25/02

☒ Total of [2] forms are submitted.

SENT BY:HBS&R

; 7-25- 2 ; 2:05PM ;

1978 136-

978 934 4043;# 4/ 4

Docket No. 2328.2003-001STATEMENT UNDER 37 C.F.R. § 3.73(b)

Applicants: Sukant S. Singh (Deceased), Lynne A. Samuelson, Ferdinando Bruno, Sucharita Roy, Ramaswamy Nagarajan, Jayant Kumar, Bon-Cheol Ku, and Soo-Hyoung Lee

Application No.: 09/994,998Filed: November 27, 2001For: POLYMERIZATION OF AROMATIC MONOMERS USING DERIVATIVES OF HEMATINUniversity of Massachusetts Lowell

(Name of Assignee)

, a university

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is

- A. ☐ the assignee of the entire right, title and interest in the patent application identified above; or
- B. ☒ an assignee together with Government of the United States, as represented by the Secretary of the Army, of the entire right, title and interest in the patent application identified above. A separate Statement under 37 CFR § 3.73(b) is being submitted.

The right, title and interest of the above-named assignee in the patent application identified above is established by virtue of:

- A. ☒ An assignment from the inventor(s) of the patent application identified above. The assignment was recorded in the Patent and Trademark Office at Reel _____, Frame _____, or a copy thereof is attached.

OR

- B. ☐ A chain of title from the inventor(s) of the patent application identified above, to the current assignee as shown below:

1. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at
Reel _____, Frame _____, or a copy thereof is attached.
2. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at
Reel _____, Frame _____, or a copy thereof is attached.
3. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at
Reel _____, Frame _____, or a copy thereof is attached.

- ☐ Additional documents in the chain of title are listed on a supplemental sheet.

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

Date: 7/25/02Name: Louis J. Petrovic, Ph.D.Title: Director of External Funding, Technology Transfer & PartneringSignature: Louis J. Petrovic

COPY

Docket No. 2328.2003-001

Joint

ASSIGNMENT

WHEREAS, I, **Lynne A. Samuelson and Ferdinando F. Bruno**, along with **Sukant Tripathy, Sucharita Roy, Ramaswamy Nagarajan, Jayant Kumar, Bon-Cheol Ku and Soo-Hyoung Lee**, have invented a certain improvement in **POLYMERIZATION OF AROMATIC MONOMERS USING DERIVATIVES OF HEMATIN**, described in an application for Letters Patent of the United States, the specification of which:

☐ is being executed on even date herewith and is about to be filed in the United States Patent Office;

☒ was filed on **November 27, 2001** as Application No. **09/994,998**;

☐ was patented under U.S. Patent No. ☐ on ☐.

WHEREAS, **the Government of the United States, as represented by the Secretary of the Army** (hereinafter "ASSIGNEE") desires to acquire an interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein; provided that if the Government determines not to cause an application to be filed in any particular foreign country or fails to make such a determination, within the said eight months, all right, title and interest in the invention in such foreign country shall remain in me (us), subject to a nonexclusive, irrevocable, royalty-free license to the Government in any patent which may issue on the invention in such foreign country, including the power to issue sublicenses for use in behalf of the Government and/or furtherance of the foreign policies of the Government;

AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

AND, we do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives.

Inventor

Lynne A. Samuelson
Lynne A. Samuelson

Date

May 9, 2002

Address

21 McDonough Drive, Marlborough MA 01752

COMMONWEALTH OF MASSACHUSETTS
COUNTY OF MIDDLESEX

Witness

ON THIS 9TH DAY OF MAY, 2002, LYNNE A SAMUELSON

Address

PERSONALLY APPEARED BEFORE ME, WHOSE IDENTITY

I PROVED ON THE BASIS OF HER MASSACHUSETTS.

Witness

DRIVERS LIC. TO BE THE SIGNER OF THE ABOVE
DOCUMENT AND SHE ACKNOWLEDGED THAT
SHE SIGNED IT WILLINGLY

Address

Brian P. Weber
BRIAN P. WEBER
Notary Public
Commonwealth of Massachusetts
My Commission Expires
May 19, 2006

Inventor's Signature: Ferdinando F Bruno
Ferdinando F. Bruno
State/Commonwealth
of Massachusetts
County of Middlesex

Then personally appeared before me the above-named **Ferdinando F. Bruno** and
acknowledged that he/she executed the foregoing instrument as his/her free act and deed this
23rd day of May, 20 02.

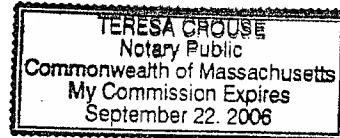
(SEAL)

Teresa Crouse

Notary Public

TERESA CROUSE (print name)

My Commission expires 09 / 22 / 06



JointASSIGNMENT

WHEREAS, we, **Sukant Tripathy, Sucharita Roy, Ramaswamy Nagarajan, Jayant Kumar, Bon-Cheol Ku and Soo-Hyoung Lee**, along with **Lynne A. Samuelson and Ferdinando F. Bruno**, have invented a certain improvement in **POLYMERIZATION OF AROMATIC MONOMERS USING DERIVATIVES OF HEMATIN**, described in an application for Letters Patent of the United States, the specification of which:

☐ is being executed on even date herewith and is about to be filed in the United States Patent Office;

☒ was filed on **November 27, 2001** as Application No. **09/994,998**;

☐ was patented under U.S. Patent No. ☐ on ☐.

WHEREAS, **University of Massachusetts Lowell** (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the **Commonwealth of Massachusetts**, and having a usual place of business at **One University Avenue, Lowell, MA 01854** desires to acquire an interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein;

AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving

of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

AND, we do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives.

IN TESTIMONY WHEREOF, we have hereunto set our hands and affixed our seals the date set forth below.

Inventor's Signature:

Susan Tripathy

Sukant Tripathy (Deceased)

Susan Tripathy, as ~~Executrix~~ of the Estate of Sukant Tripathy
Administratrix

State/Commonwealth

of

MA

County of

Middlesex

ST
7-18-02

Then personally appeared before me the above-named **Susan Tripathy** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 18 day of July, 2002.

(SEAL)

Monisha Malhotra


Notary Public

Monisha Malhotra (print name)

My Commission expires 10/31/08

Monisha Malhotra, Notary Public
Commonwealth of Massachusetts
My Commission Expires 10/31/2008

Inventor's Signature: _____


Sucharita Roy

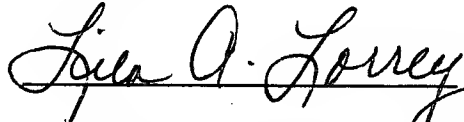
State/Commonwealth

of Massachusetts

County of Middlesex

Then personally appeared before me the above-named **Sucharita Roy** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 19th day of July, 2002.

(SEAL)

 Notary Public
Lila A. Lorrey (print name)

My Commission expires 06 / 07 / 2007.

Inventor's Signature: _____


Ramaswamy Nagarajan

State/Commonwealth

of Massachusetts

County of Middlesex

Then personally appeared before me the above-named **Ramaswamy Nagarajan** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 28th day of June, 2002.

(SEAL)

 Notary Public
Lila A. Lorrey (print name)

My Commission expires 06 / 07 / 2007.

Inventor's Signature: _____ J Kumar
State/Commonwealth _____
of Massachusetts
County of Middlesex

Jayant Kumar

Then personally appeared before me the above-named **Jayant Kumar** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this second day of July, 2002.

(SEAL)

Lila A. Lorrey Notary Public
Lila A. Lorrey (print name)

My Commission expires 06 / 07 / 2007.

Inventor's Signature: _____
State/Commonwealth _____
of _____
County of _____

Bon-Cheol Ku

Then personally appeared before me the above-named **Bon-Cheol Ku** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this _____ day of _____, 20____.

(SEAL)

Notary Public
(print name)

My Commission expires ____/____/____

Inventor's Signature: _____

Jayant Kumar

State/Commonwealth

of _____

County of _____

Then personally appeared before me the above-named **Jayant Kumar** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this _____ day of _____, 20____.

(SEAL)

Notary Public

(print name)

My Commission expires ____/____/____

Inventor's Signature: _____

Bon-Cheol Ku

State/Commonwealth

of MASSACHUSETTS

County of MIDDLESEX

Then personally appeared before me the above-named **Bon-Cheol Ku** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 23RD day of MAY, 2004.

(SEAL)



Notary Public

MICHAEL V. ACCARDI (print name)

My Commission expires 9/10/2004

Inventor's Signature: *Soo-Hyoung Lee*
Soo-Hyoung Lee

State/Commonwealth
of Massachusetts
County of Suffolk

Then personally appeared before me the above-named **Soo-Hyoung Lee** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this _____ day of May 23, 2002.

(SEAL)

Catherine Maton McDonough Notary Public
CATHERINE MATON-MCDONOUGH (print name)
My Commission expires 03 / 08 / 2007

JointASSIGNMENT

WHEREAS, we, **Sukant Tripathy, Sucharita Roy, Ramaswamy Nagarajan, Jayant Kumar, Bon-Cheol Ku and Soo-Hyoung Lee**, along with **Lynne A. Samuelson and Ferdinando F. Bruno**, have invented a certain improvement in **POLYMERIZATION OF AROMATIC MONOMERS USING DERIVATIVES OF HEMATIN**, described in an application for Letters Patent of the United States, the specification of which:

- ☐ is being executed on even date herewith and is about to be filed in the United States Patent Office;
- ☒ was filed on **November 27, 2001** as Application No. **09/994,998**;
- ☐ was patented under U.S. Patent No. ☐ on ☐.

WHEREAS, **University of Massachusetts Lowell** (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the **Commonwealth of Massachusetts**, and having a usual place of business at **One University Avenue, Lowell, MA 01854** desires to acquire an interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein;

AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving

of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

AND, we do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives.

IN TESTIMONY WHEREOF, we have hereunto set our hands and affixed our seals the date set forth below.

Inventor's Signature:

Susan Tripathy

Sukant Tripathy (Deceased)

Susan Tripathy, as ~~Executrix~~ of the Estate of Sukant Tripathy
Administratrix

State/Commonwealth

of

MA

County of

Middlesex

Then personally appeared before me the above-named **Susan Tripathy** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 18 day of July, 2002.

(SEAL)

Monisha Malhotra

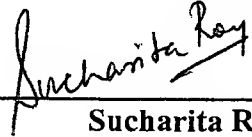
Notary Public

Monisha Malhotra (print name)

My Commission expires 10/31/08

**Monisha Malhotra, Notary Public
Commonwealth of Massachusetts
My Commission Expires 10/31/2008**

Inventor's Signature: _____



Sucharita Roy

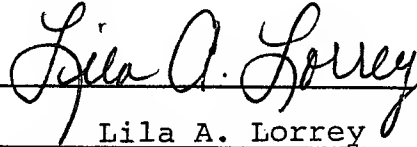
State/Commonwealth

of Massachusetts

County of Middlesex

Then personally appeared before me the above-named **Sucharita Roy** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 19th day of July, 2002.

(SEAL)



Notary Public

Lila A. Lorrey (print name)

My Commission expires 06 / 07 / 2007.

Inventor's Signature: _____



Ramaswamy Nagarajan

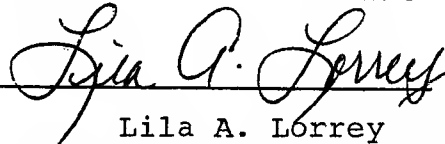
State/Commonwealth

of Massachusetts

County of Middlesex

Then personally appeared before me the above-named **Ramaswamy Nagarajan** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 28th day of June, 2002.

(SEAL)



Notary Public

Lila A. Lorrey (print name)

My Commission expires 06 / 07 / 2007.

Inventor's Signature: _____
Jayant Kumar

State/Commonwealth
of Massachusetts
County of Middlesex

Then personally appeared before me the above-named **Jayant Kumar** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this second day of July, 2002.

(SEAL) _____ Notary Public
Lila A. Lorrey (print name)

My Commission expires 06 / 07 / 2007.

Inventor's Signature: _____
Bon-Cheol Ku

State/Commonwealth
of _____
County of _____

Then personally appeared before me the above-named **Bon-Cheol Ku** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this _____ day of _____, 20____.

(SEAL) _____ Notary Public

(print name)

My Commission expires ____ / ____ / ____

Inventor's Signature: _____
Jayant Kumar

State/Commonwealth
of _____
County of _____

Then personally appeared before me the above-named **Jayant Kumar** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this _____ day of _____, 20____.

(SEAL) _____ Notary Public

(print name)
My Commission expires ____/____/____

Inventor's Signature: _____
Bon-Cheol Ku

~~State~~/Commonwealth
of MASSACHUSETTS
County of MIDDLESEX

Then personally appeared before me the above-named **Bon-Cheol Ku** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 23RD day of MAY, 2002.

(SEAL) _____ Notary Public
MICHAEL V. ACCARDI (print name)
My Commission expires 9 / 10 / 2004

Inventor's Signature: Soo-Hyoung Lee
Soo-Hyoung Lee

State/Commonwealth
of Massachusetts
County of Suffolk

Then personally appeared before me the above-named **Soo-Hyoung Lee** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this _____ day of 5/23, 2002.

(SEAL)

Catherine Maton McDonough Notary Public

CATHERINE MATON-MCDONOUGH (print name)

My Commission expires 03/08/2007

O I P E

AUG 05 2002

**POWER OF ATTORNEY OR
AUTHORIZATION OF AGENT AND
CORRESPONDENCE ADDRESS**

Application Number	09/994,998
Filing Date	November 27, 2001
First Named Inventor	Sukant Tripathy
Group Art Unit	1614
Examiner Name	not assigned
Attorney Docket Number	2328.2003-001

Title POLYMERIZATION OF AROMATIC MONOMERS USING DERIVATIVES OF HEMATIN

I/We hereby appoint

- ☒ the attorneys/agents associated with Customer No. 021005
☐ Practitioner(s) named below:

as my/our attorneys/agents to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

The correspondence address for the above-identified application is:

- ☒ Customer Number 021005
Hamilton, Brook, Smith & Reynolds, P.C.
530 Virginia Road
P.O. Box 9133
Concord, Massachusetts 01742-9133
☐ Other _____

Please direct all telephone calls and facsimiles to:

Name N. Scott Pierce Tel. No. 978-341-0036 Fax No. 978-341-0136

I am the:

- ☐ Applicant/Inventor.
☐ Authorized representative of the Assignee of the entire interest. See 37 C.F.R. 3.71. A Statement under 37 C.F.R. §3.73(b) is enclosed.
☒ Authorized representative of an assignee together with University of Massachusetts Lowell of the entire interest. A separate Statement under 37 C.F.R. § 3.73(b) is enclosed.

SIGNATURE of Applicant or Assignee of Record

Name	Vincent J. Ranucci, Esq.
Signature	<i>Vincent J. Ranucci</i>
Date	JULY 25, 2002

☒ Total of [2] forms are submitted.

Docket No. 2328.2003-001STATEMENT UNDER 37 C.F.R. § 3.73(b)Applicants: Sukant Tripathy (Deceased), Lynne A. Samuelson, Ferdinando Bruno, Sucharita Roy, Ramaswamy Nagarajan, Jayanti Kumar, Bon-Cheol Ku, and Soo-Hyoung LeeApplication No.: 09/994,998Filed: November 27, 2001For: POLYMERIZATION OF AROMATIC MONOMERS USING DERIVATIVES OF HEMATINGovernment of the United States, as represented by the Secretary of the Army, a Government agency

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is

- A. ☐ the assignee of the entire right, title and interest in the patent application identified above; or
- B. ☒ an assignee together with University of Massachusetts Lowell of the entire right, title and interest in the patent application identified above. A separate Statement under 37 CFR § 3.73(b) is being submitted.

The right, title and interest of the above-named assignee in the patent application identified above is established by virtue of:

- A. ☒ An assignment from the inventor(s) of the patent application identified above. The assignment was recorded in the Patent and Trademark Office at Reel _____, Frame _____, or a copy thereof is attached.

OR

- B. ☐ A chain of title from the inventor(s) of the patent application identified above, to the current assignee as shown below:

1. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at
Reel _____, Frame _____, or a copy thereof is attached.
2. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at
Reel _____, Frame _____, or a copy thereof is attached.
3. From: _____ To: _____
The document was recorded in the Patent and Trademark Office at
Reel _____, Frame _____, or a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

Date: JULY 25, 2002Name: Vincent J. Ranucci, Esq.Title: PATENT ATTORNEYSignature: Vincent J. Ranucci

COPY

Docket No. 2328.2003-001

Joint

ASSIGNMENT

WHEREAS, I, **Lynne A. Samuelson and Ferdinando F. Bruno**, along with **Sukant Tripathy, Sucharita Roy, Ramaswamy Nagarajan, Jayant Kumar, Bon-Cheol Ku and Soo-Hyoung Lee**, have invented a certain improvement in **POLYMERIZATION OF AROMATIC MONOMERS USING DERIVATIVES OF HEMATIN**, described in an application for Letters Patent of the United States, the specification of which:

☐ is being executed on even date herewith and is about to be filed in the United States Patent Office;

☒ was filed on **November 27, 2001** as Application No. **09/994,998**;

☐ was patented under U.S. Patent No. ☐ on ☐.

WHEREAS, **the Government of the United States, as represented by the Secretary of the Army** (hereinafter "ASSIGNEE") desires to acquire an interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein; provided that if the Government determines not to cause an application to be filed in any particular foreign country or fails to make such a determination, within the said eight months, all right, title and interest in the invention in such foreign country shall remain in me (us), subject to a nonexclusive, irrevocable, royalty-free license to the Government in any patent which may issue on the invention in such foreign country, including the power to issue sublicenses for use in behalf of the Government and/or furtherance of the foreign policies of the Government;

AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

AND, we do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives.

Inventor

Lynne A. Samuelson
Lynne A. Samuelson

Date

May 9, 2002

Address

21 McDonough Drive, Marlborough MA 01752

COMMONWEALTH OF MASSACHUSETTS
COUNTY OF MIDDLESEX

Witness

ON THIS 9TH DAY OF MAY, 2002, LYNNE A SAMUELSON

Address

PERSONALLY APPEARED BEFORE ME, WHOSE IDENTITY

I PROVED ON THE BASIS OF HER MASSACHUSETTS.

DRIVERS LIC. TO BE THE SIGNER OF THE ABOVE
DOCUMENT AND SHE ACKNOWLEDGED THAT
SHE SIGNED IT WILLINGLY

Witness

Address

Brian P. Weber
BRIAN P. WEBER
Notary Public
Commonwealth of Massachusetts
My Commission Expires
May 19, 2006

Inventor's Signature: _____

Ferdinando F. Bruno

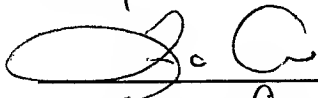
State/Commonwealth

of Massachusetts

County of Middlesex

Then personally appeared before me the above-named **Ferdinando F. Bruno** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 23rd day of May, 2002.

(SEAL)

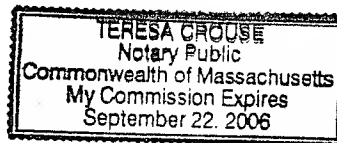


Notary Public

TERESA CROUSE

(print name)

My Commission expires 09 / 22 / 06



JointASSIGNMENT

WHEREAS, we, **Sukant Tripathy, Sucharita Roy, Ramaswamy Nagarajan, Jayant Kumar, Bon-Cheol Ku and Soo-Hyoung Lee**, along with **Lynne A. Samuelson and Ferdinando F. Bruno**, have invented a certain improvement in **POLYMERIZATION OF AROMATIC MONOMERS USING DERIVATIVES OF HEMATIN**, described in an application for Letters Patent of the United States, the specification of which:

☐ is being executed on even date herewith and is about to be filed in the United States Patent Office;

☒ was filed on **November 27, 2001** as Application No. **09/994,998**;

☐ was patented under U.S. Patent No. ☐ on ☐.

WHEREAS, **University of Massachusetts Lowell** (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the **Commonwealth of Massachusetts**, and having a usual place of business at **One University Avenue, Lowell, MA 01854** desires to acquire an interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein;

AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving

of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

AND, we do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives.

IN TESTIMONY WHEREOF, we have hereunto set our hands and affixed our seals the date set forth below.

Inventor's Signature:

Susan Tripathy

Sukant Tripathy (Deceased)

Susan Tripathy, as ~~Executrix~~ of the Estate of Sukant Tripathy
Administratrix

State/Commonwealth

of

MA

County of

Middlesex

ST
7-18-02

Then personally appeared before me the above-named **Susan Tripathy** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 18 day of July, 2002.

(SEAL)

Monisha Malhotra

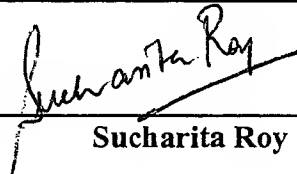
Notary Public

Monisha Malhotra (print name)

My Commission expires 10/31/08

Monisha Malhotra, Notary Public
Commonwealth of Massachusetts
My Commission Expires 10/31/2008

Inventor's Signature: _____


Sucharita Roy

State/Commonwealth

of Massachusetts

County of Middlesex

Then personally appeared before me the above-named **Sucharita Roy** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 19th day of July, 2002.

(SEAL)

 Notary Public
Lila A. Lorrey (print name)

My Commission expires 06 / 07 / 2007.

Inventor's Signature: _____



Ramaswamy Nagarajan

State/Commonwealth

of Massachusetts

County of Middlesex

Then personally appeared before me the above-named **Ramaswamy Nagarajan** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 28th day of June, 2002.

(SEAL)

 Notary Public
Lila A. Lorrey (print name)

My Commission expires 06 / 07 / 2007.

Inventor's Signature: _____
Jayant Kumar

State/Commonwealth
of Massachusetts
County of Middlesex

Then personally appeared before me the above-named **Jayant Kumar** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this second day of July, 2002.

(SEAL)

Lila A. Lorrey Notary Public
Lila A. Lorrey (print name)
My Commission expires 06 / 07 / 2007.

Inventor's Signature: _____
Bon-Cheol Ku

State/Commonwealth
of _____
County of _____

Then personally appeared before me the above-named **Bon-Cheol Ku** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this _____ day of _____, 20____.

(SEAL)

My Commission expires ____ / ____ / ____

Inventor's Signature: _____
Jayant Kumar

State/Commonwealth
of _____
County of _____

Then personally appeared before me the above-named **Jayant Kumar** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this _____ day of _____, 20____.

(SEAL) _____ Notary Public

(print name)
My Commission expires ____/____/____

Inventor's Signature: _____
Bon-Cheol Ku

State/Commonwealth
of MASSACHUSETTS
County of MIDDLESEX

Then personally appeared before me the above-named **Bon-Cheol Ku** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 23rd day of MAY, 2004.

(SEAL) _____ Notary Public
MICHAEL V. ACCARDI (print name)
My Commission expires 9/10/2004

Inventor's Signature: _____

Soo-Hyoung Lee
Soo-Hyoung Lee

State/Commonwealth

of Massachusetts

County of Suffolk

Then personally appeared before me the above-named **Soo-Hyoung Lee** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this _____ day of May 23, 2002.

(SEAL)

Catherine Mator McDonough Notary Public

CATHERINE MATOR-MCDONOUGH (print name)

My Commission expires 03 / 08 / 2007

JointASSIGNMENT

WHEREAS, we, **Sukant Tripathy, Sucharita Roy, Ramaswamy Nagarajan, Jayant Kumar, Bon-Cheol Ku and Soo-Hyoung Lee**, along with **Lynne A. Samuelson and Ferdinando F. Bruno**, have invented a certain improvement in **POLYMERIZATION OF AROMATIC MONOMERS USING DERIVATIVES OF HEMATIN**, described in an application for Letters Patent of the United States, the specification of which:

- ☐ is being executed on even date herewith and is about to be filed in the United States Patent Office;
- ☒ was filed on **November 27, 2001** as Application No. **09/994,998**;
- ☐ was patented under U.S. Patent No. ☐ on ☐.

WHEREAS, **University of Massachusetts Lowell** (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the **Commonwealth of Massachusetts**, and having a usual place of business at **One University Avenue, Lowell, MA 01854** desires to acquire an interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein;

AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the giving

of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

AND, we do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives.

IN TESTIMONY WHEREOF, we have hereunto set our hands and affixed our seals the date set forth below.

Inventor's Signature:

Susan Tripathy

Sukant Tripathy (Deceased)

Susan Tripathy, as ~~Executrix~~ of the Estate of Sukant Tripathy
Administratrix

State/Commonwealth

of

MA

County of

Middlesex

Then personally appeared before me the above-named **Susan Tripathy** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 18 day of July, 2002.

(SEAL)

Monisha Malhotra

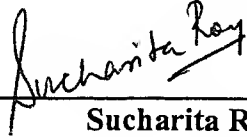
Notary Public

Monisha Malhotra (print name)

My Commission expires 10/31/08

Monisha Malhotra, Notary Public
Commonwealth of Massachusetts
My Commission Expires 10/31/2008

Inventor's Signature: _____



Sucharita Roy

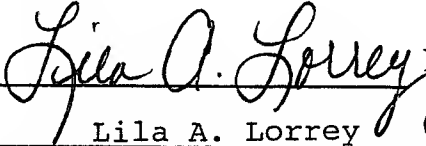
State/Commonwealth

of Massachusetts

County of Middlesex

Then personally appeared before me the above-named **Sucharita Roy** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 19th day of July, 2002.

(SEAL)




Notary Public

Lila A. Lorrey (print name)

My Commission expires 06 / 07 / 2007.

Inventor's Signature: _____



Ramaswamy Nagarajan

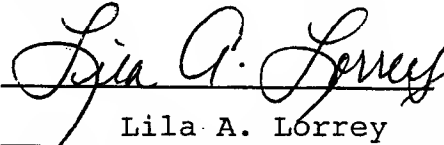
State/Commonwealth

of Massachusetts

County of Middlesex

Then personally appeared before me the above-named **Ramaswamy Nagarajan** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 28th day of June, 2002.

(SEAL)



Notary Public

Lila A. Lorrey (print name)

My Commission expires 06 / 07 / 2007.

Inventor's Signature: _____

Jayant Kumar

State/Commonwealth _____

of Massachusetts

County of Middlesex

Then personally appeared before me the above-named **Jayant Kumar** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this second day of July, 2002.

(SEAL)

Lila A. Lorrey Notary Public
Lila A. Lorrey (print name)

My Commission expires 06 / 07 / 2007.

Inventor's Signature: _____

Bon-Cheol Ku

State/Commonwealth _____

of _____

County of _____

Then personally appeared before me the above-named **Bon-Cheol Ku** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this _____ day of _____, 20____.

(SEAL)

Notary Public

(print name)

My Commission expires ____ / ____ / ____

Inventor's Signature: _____

Jayant Kumar

State/Commonwealth

of _____

County of _____

Then personally appeared before me the above-named **Jayant Kumar** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this _____ day of _____, 20____.

(SEAL)

Notary Public

(print name)

My Commission expires ____/____/____

Inventor's Signature: _____

Bon-Cheol Ku

~~State~~/Commonwealth

of MASSACHUSETTS

County of MIDDLESEX

Then personally appeared before me the above-named **Bon-Cheol Ku** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this 23RD day of MAY, 2002.

(SEAL)

Michael V. Accardi
Notary Public

Michael V. Accardi (print name)

My Commission expires 9 / 10 / 2004

Inventor's Signature: Soo-Hyoung Lee
Soo-Hyoung Lee

State/Commonwealth
of Massachusetts
County of Suffolk

Then personally appeared before me the above-named **Soo-Hyoung Lee** and acknowledged that he/she executed the foregoing instrument as his/her free act and deed this _____ day of 5/23, 2002.

(SEAL)

Catherine Maton McDonough Notary Public

CATHERINE MATON-MCDONOUGH (print name)

My Commission expires 03/08/2007